

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND - REGION I  
ONE CONGRESS STREET, SUITE 1100  
BOSTON, MASSACHUSETTS 02114-2023**

**FACT SHEET**

**DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
(NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES  
PURSUANT TO THE CLEAN WATER ACT (CWA)**

**NPDES PERMIT NUMBER: MA0000817**

**NAME AND MAILING ADDRESS OF APPLICANT:**

**Saint-Gobain Abrasives, Inc. and Saint-Gobain Ceramics & Plastics, Inc.  
1 New Bond Street  
Worcester, MA 01615**

**NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:**

**Saint-Gobain Abrasives, Inc. and Saint-Gobain Ceramics & Plastics, Inc.  
1 New Bond Street  
Worcester, MA 01615**

**RECEIVING WATER(S): Weasel Brook**  
(USGS Hydrologic Code #01090003 – Blackstone River Basin)

**RECEIVING WATER CLASSIFICATION(S): Class B - Warm water fishery**

**SIC CODES: 3291 – Abrasive products; 3297 – Non-clay refractories  
3255 – Clay refractories**

**Table of Contents**

I. Proposed Action, Type of Facility and Discharge Location .....	3
II. Description of Treatment System and Discharges .....	3
III. Receiving Water Description .....	4
IV. Limitations and Conditions .....	4
V. Permit Basis: Statutory and Regulatory Authority .....	4
General Requirements .....	4
Technology-Based Requirements .....	5
Water Quality-Based Requirements .....	5
Antibacksliding .....	7
Antidegradation .....	7
VI. Explanation of Permit's Effluent Limitations .....	8
Outfalls 001 and 003 .....	8
Outfall 003B.....	12
Storm Water.....	13
Storm Water Pollution Prevention Plan (SWPPP) .....	15
VII. Essential Fish Habitat Determination (EFH) .....	16
VIII. Endangered Species Act (ESA) .....	17
IX. State Certification Requirements .....	17
X. Public Comment Period, Public Hearing, and Procedures for Final Decision ..	18
XI. EPA and MassDEP Contacts .....	18

Attachment A – DMR Data Summary for Outfalls 001 and 002

Figure 1 - Facility Location Map

Figure 2 - Water Flow Schematic

## **I. Proposed Action, Type of Facility and Discharge Location**

Saint Gobain Abrasives, Inc., formerly the Norton Company, is a facility located in Worcester, Massachusetts that manufactures a variety of products including grinding wheels, refractory products, abrasive compounds, and silicon carbide products. The current NPDES permit, which was issued in 2003, authorized the discharge of various non-contact cooling water (NCCW) streams, steam condensate, storm water, and filtered storm water from a coal pocket area from 2 separate outfalls and one internal outfall. See **Figure 1** for a map of the facility location and **Figure 2** for a water flow schematic.

The Facility's current permit expired on February 18, 2009. The permit has been administratively continued due to the permittee's submittal of a completed re-application. As a result, Saint Gobain Abrasives remains subject to its existing (2003) permit until EPA issues a new one.

## **II. Description of Treatment System and Discharges**

### **Outfalls 001 and 003 – Non-Contact Cooling Water, Steam Condensate, Cooling Tower Blowdown, Storm Water**

These outfalls are comprised mainly of non-contact cooling water discharges from various operations conducted in various buildings associated with bearing cooling, mill cooling, compressor cooling and air conditioning cooling. There is also a cooling tower blowdown discharge and steam condensate from steam traps to Outfall 001. Both of these outfalls discharge to Weasel Brook.

Outfall 001 also includes storm water runoff which originates off-site, from the Route 190 highway, which is owned and operated by Mass Highway Department. This storm water flows onto Saint Gobain's property, is captured in a swale, and is transmitted under the manufacturing buildings and eventually connects to the clay pipe which discharges to Outfall 001.

### **Outfall 003B**

Saint Gobain operates a coal fired power plant on site which supplies about 40% of the facility's power needs. This plant is rated at about 3 MW and can sell electricity to the local grid when needed. The permittee maintains a coal pile on site which has been graded to collect storm water that comes into contact with it and is referred to as the "coal pocket." In order to avoid discharging storm water that has come in contact with this coal pile without treatment, the permittee pumps storm water that has collected in this coal pocket to a location inside the power plant building where the water is treated through sand filtration in a vertical cylinder. See **Figure 2**. Flow through this cylinder is about 5 gallons per minute. The 2003 permit limited this internal outfall, designated as Outfall 003B, to 50 mg/l for total suspended solids (TSS) to assure that coal pocket storm water runoff was being treated sufficiently prior to being discharged along with other

flows to Outfall 003. Occasionally, the permittee must backwash this filter and this backwash is sent back to the coal pocket and not discharged to Outfall 003.

### **III. Receiving Water Description**

Under the state water use classification system, the Massachusetts Department of Environmental Protection (MassDEP) has designated Mill Brook, to which Weasel Brook is a tributary, as a Class B water warm fishery, with combined sewer overflow (CSO) discharges (314 CMR 4.00). Mill Brook is entirely within the City of Worcester in the Blackstone River Watershed and runs from the outlet of Indian Lake to the confluence with the Middle River and is designated as Segment MA51-08. Class B waters are designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated, they shall be suitable for a source of public water supply following appropriate treatment. Class B waters shall be suitable for irrigation and other agricultural uses, and for compatible industrial cooling and process uses. The waters shall have consistently good aesthetic value.

Mill Brook does not always meet the state water quality standards prescribed for Class B waters, and is included on MassDEP's 2008 303(d) list of impaired waters for priority organics, metals, unionized ammonia, nutrients, organic enrichment/low dissolved oxygen, pathogens, oil and grease, suspended solids, turbidity, and taste, odor, and color. Although a tributary to Mill Brook, Weasel Brook is not specifically cited in the 303(d) listing. In its 1999 water quality assessment report for Mill Brook, the MassDEP noted that the aquatic life designated use was in non-support due to habitat alteration caused by channelization and habitat modification as well as toxicity caused by industrial point sources. In addition, primary and secondary contact recreation uses were not being attained due to oil and grease and odor from urban runoff and illicit sewer connections.

### **IV. Limitations and Conditions**

The effluent limitations and all other requirements described in Part VI of this Fact Sheet may be found in the draft permit.

### **V. Permit Basis: Statutory and Regulatory Authority**

#### **General Requirements**

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. This draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and any applicable State regulations. The regulations

governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136.

When developing permit limits, EPA must consider the most recent technology-based treatment and water quality-based requirements. Subpart A of 40 CFR Part 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA-promulgated effluent limitations and case-by-case determinations of effluent limitations under Section 402(a)(1) of the CWA. EPA is required to consider technology and water quality-based requirements as well as all limitations and requirements in the existing permit when developing permit limits.

### **Technology-Based Requirements**

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (see 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. None of the discharges authorized by this permit are subject to any technology based guidelines. The permittee discharges all of its industrial wastewater, with the exception of the permitted NCCW flows, to the Upper Blackstone Water Pollution Abatement District under an industrial pretreatment program permit.

In general, the statutory deadline for non-POTW, technology-based effluent limitations must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 (see 40 CFR §125.3(a)(2)). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA can not be authorized by a NPDES permit.

In the absence of published technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using best professional judgment (BPJ).

The effluent monitoring requirements have been established to yield data representative of the discharges under the authority of Section 308(a) of the CWA, according to regulations set forth at 40 CFR § 122.41(j), 122.44(i) and 122.48. The monitoring program in the permit specifies routine sampling and analysis which will provide continuous information on the reliability and effectiveness of the installed pollution abatement equipment. The approved analytical procedures are to be found in 40 CFR 136 unless other procedures are explicitly required in the permit.

### **Water Quality-Based Requirements**

Water quality-based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary

to maintain or achieve state or federal water quality standards (WQS). See Section 301(b)(1)(C) of the CWA.

Receiving water requirements are established according to numerical and narrative standards adopted under state law for each water quality classification. When using chemical-specific numeric criteria to develop permit limits, both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic-life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic-life criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR § 122.44(d)(1) and are implemented under 40 CFR § 122.45(d).

A facility's design flow is used when deriving constituent limits for daily and monthly time periods as well as weekly periods where appropriate. Also, the dilution provided by the receiving water is factored into this process where appropriate. Narrative criteria from the state's water quality standards are often used to limit toxicity in discharges where (a) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (b) toxicity cannot be traced to a specific pollutant.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal WQS. The permit must address any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality criterion. See 40 CFR Section 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA considers (a) existing controls on point and non-point sources of pollution; (b) pollutant concentration and variability in the effluent and receiving water as determined from the permit application, monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (c) sensitivity of the species to toxicity testing; (d) known water quality impacts of processes on wastewater; and, where appropriate, (e) dilution of the effluent in the receiving water.

WQS consist of three parts: (a) beneficial designated uses for a water body or a segment of a water body; (b) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (c) antidegradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards (MA SWQS), found at 314 CMR 4.00, include these elements. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site-specific criterion is established. The conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain WQS.

Massachusetts adopted revisions to its SWQS on December 29, 2006, which included site specific limits for copper for certain water bodies, including portions of the Blackstone River Basin. The EPA subsequently approved these revisions to the SWQS and the site specific copper criteria are applicable to this discharge as described below.

### **Antibacksliding**

A permit may not be renewed, reissued or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA [see Sections 402(o) and 303(d)(4) of the CWA and 40 CFR §122.44(l)(1 and 2)]. EPA's antibacksliding provisions prohibit the relaxation of permit limits, standards, and conditions except under certain circumstances. Effluent limits based on BPJ, water quality, and state certification requirements must also meet the antibacksliding provisions found at Section 402(o) and 303(d)(4) of the CWA.

Some limits and monitoring requirements in the 2003 permits have been eliminated in this draft permit due to transfers of property or the shutdown of operations. For Outfall 004, the previous air conditioning cooling discharge from Plant 2 has been discontinued, which was the only flow to this outfall. Outfalls 002 and SW2 are no longer on property owned by the permittee. For the elimination of the limits and monitoring requirements associated with these 3 outfalls, EPA determined that the “material and substantial alterations language” at 40 CFR 122.44(l)(2)(i)(A) applies. Since the 2003 permit was issued, these three outfalls have become inactive due to termination of flows (Outfall 004) and transfers of property to other entities (Outfalls 002 and SW2). EPA believes that these changes represent “material and substantial alterations” and has made the determination that the antibacksliding provisions are satisfied.

### **Antidegradation**

Federal regulations found at 40 CFR Section 131.12 require states to develop and adopt a statewide antidegradation policy which maintains and protects existing instream water uses and the level of water quality necessary to protect the existing uses, and maintains the quality of waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water. The Massachusetts Antidegradation Regulations are found at Title 314 CMR 4.04. There are no new or increased discharges being proposed with this reissuance. Therefore, EPA does not believe that the MassDEP is required to conduct an antidegradation review regarding this permit issuance.

### **State Certification**

Under Section 401 of the CWA, EPA is required to obtain certification from the state in which the discharge is located that all water quality standards or other applicable requirements of state law, in accordance with Section 301(b)(1)(C) of the CWA, are satisfied. EPA permits are to include any conditions required in the state's certification as being necessary to ensure compliance with state water quality standards or other

applicable requirements of state law. See CWA Section 401(a) and 40 CFR §124.53(e). Regulations governing state certification are set out at 40 CFR §124.53 and §124.55. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.44(d).

## **VI. Explanation of Permit's Effluent Limitations**

### **Outfalls 001 and 003**

Attachment A shows the discharge monitoring report (DMR) data for Outfalls 001 and 003 for the reporting period of January 2006 to May 2008. This data was taken into consideration when determining whether the existing permit limits need to be maintained, reduced, or eliminated. In the following discussion, this period is referred to as the “monitoring period”.

### **Flow**

The flow limits in the 2003 permit were a monthly average of 130,000 gallons per day (GPD) for both outfalls. The permittee obtains the majority of the water it uses at the facility from several on-site wells. City water is only used at the powerhouse, which results in minimal amounts of steam condensate discharge, and at the cooling tower, which results in a blowdown discharge. These discharges comprise about 10% of the total permitted dry weather flow to Outfall 001. The permittee has undertaken flow reduction measures during this permit term and has reduced its flow to both outfalls considerably. Therefore, this draft permit has established flow limits of 60,480 GPD and 77,040 GPD for Outfalls 001 and 003, respectively. There were no flow limit violations during the monitoring period.

### **Temperature**

Since these outfalls are comprised mainly of NCCW flows, the 2003 permit established a temperature limit of 83 °F for both outfalls, consistent with the MA SWQS. During the monitoring period, the permittee has had only one exceedance above this limit for Outfall 003. The 83 °F limit has been maintained for both outfalls.

### **pH**

The pH range is limited to the Class B range of 6.5 to 8.3 standard units (su) which is the range required by the MA SWQS and which can be found at 314 CMR 4.05. During the monitoring period, the permittee has been in compliance with this permitted range, with values ranging from 6.6 to 7.6 s.u. The permitted range of 6.5 – 8.3 s.u. will remain in the permit with a monthly monitoring frequency.



## Oil & Grease

The 2003 permit required quarterly monitoring for oil & grease (O&G), with a limit of 15 mg/l for both outfalls, to be taken dry weather. The permittee has not violated this limit for either outfall during the monitoring period, but has consistently shown detectable levels of this parameter. These limits were originally established due to the consistent detection of low levels of oil & grease in both outfalls.

The oil and grease limits are derived from the narrative water quality criteria in the state water quality standards [see 314 CMR 4.05(3) and (4)]. For discharges to Class B and SB waters in Massachusetts, the narrative criteria require no oil and grease that produces a visible film on the surface of the receiving water. The Region interprets this narrative criterion as prohibiting a discharge to these waters that would cause an oil sheen. EPA has maintained the oil and grease limit of 15 mg/l for this draft permit for both outfalls based on the Region's long standing use of the 15 mg/l standard to represent the concentration at which a visible oil sheen is likely to occur. This limit will ensure the narrative water quality standards for oil and grease are protected.

## Metals

Metals limits may be established in a permit when available data on effluent metals is determined by EPA to represent a reasonable potential to cause or contribute to water quality standards violations. For this permit, EPA will make this determination by comparing the calculated metals limits to the existing effluent metals data. The permittee's whole effluent toxicity (WET) tests conducted during dry weather between 2004 and 2008 included effluent sampling for a variety of metals as follows:

	<u>Outfall 001</u>	<u>Outfall 003</u>
Total Copper:	20 ug/l to 124 ug/l	80 ug/l to 150 ug/l
Total Zinc:	12 to 110 ug/l	26 to 175 ug/l
Total Lead:	Non-detect (ND) to 10 ug/l	1 to 14 ug/l
Total Aluminum:	ND to 150 ug/l	10 to 840 ug/l

Metals limits are typically calculated by taking into consideration the dilution which is available to the discharge. The instream criteria for these metals is multiplied by the applicable dilution factor and is compared against available metals sampling data to determine whether permit limits are warranted. The 7Q10 flow is used to calculate the dilution factor, which represents the statistical 7 day low flow over a 10 year period. The dilution factor for Outfalls 001 and 003 has been calculated as follows:

Weasel Brook 7Q10 flow (from USGS Streamstats): **0.0058 MGD or 5800 gpd**

Outfall 001 flow - **60,480 gpd**; Outfall 003 flow = **77,040 gpd**

$$\text{Outfall 001 dilution: } \frac{60,480 + 5800}{60,480} = 1.1 \quad \text{Outfall 003 dilution: } \frac{77,040 + 5800}{77,040} = 1.1$$

As discussed earlier, the Commonwealth of Massachusetts has adopted and EPA has approved site specific criteria for copper for portions of the Blackstone River basin, including the entire length of Weasel Brook. These site specific limits for total copper are a monthly average (chronic) of 18.1 ug/l and a daily maximum (acute) of 25.7 ug/l, which are higher than the water quality criteria based limits for copper. The site specific limits will be the ones against which EPA must make a judgement of reasonable potential, since the site specific limits override the WQC based limits. Using the dilution factor of 1.1, the appropriate effluent limits would be 20 and 28 ug/l, respectively.

The water quality based limits for the metals zinc, and lead are hardness dependent, while those for aluminum are not. The water quality criteria (WQC) for aluminum are a chronic value of 87 ug/l and an acute value of 750 ug/l and after multiplying by the dilution factor would yield applicable effluent limits of 96 ug/l and 825 ug/l, respectively. The limits for the hardness dependent metals that would apply to these discharges have been calculated below based on a hardness of 100 mg/l (as CaCO<sub>3</sub>), which is on the low end of hardness values recorded for Weasel Brook and the outfalls in the WET testing.

Water Quality Criteria: Hardness dependent; Equation:  $e^{(X [\ln(h)] + Y)}$

Where X and Y are chronic and acute coefficients for dissolved fractions of metals (National Recommended Water Quality Criteria, December 10, 1998, FR Vol. 63, No.237).

	<u>Zinc</u>		<u>Lead</u>	
	<u>Chronic</u>	<u>Acute</u>	<u>Chronic</u>	<u>Acute</u>
Where: X =	0.8473	0.8473	1.273	1..273
Y =	0.884	0.884	-4.705	- 1.46

h = Hardness = 100 mg/l as CaCO<sub>3</sub><sup>2</sup> ; ln = natural logarithm

$$\begin{aligned} \text{Thus; for lead: } e^{(1.273 [\ln(100)] - 4.705)} &= 2.5 \text{ ug/l (1.1)} = \mathbf{2.75 \text{ ug/l}} \\ e^{(1.273 [\ln(50)] - 1.46)} &= 65 \text{ ug/l (1.1)} = \mathbf{71.5 \text{ ug/l}} \end{aligned}$$

$$\begin{aligned} \text{for zinc: } e^{(0.8473 [\ln(100)] + 0.884)} &= 120 \text{ ug/l (1.1)} = \mathbf{132 \text{ ug/l}} \\ e^{(0.8473 [\ln(100)] + 0.884)} &= 120 \text{ ug/l (1.1)} = \mathbf{132 \text{ ug/l}} \end{aligned}$$

These values must be divided by a conversion factor to attain the applicable total metal limit. The chronic value corresponds to a monthly average limit and the acute to a daily maximum limit. These values may be found in the 1998 document listed above.

Applicable Effluent Limitations:

Zinc, chronic (monthly average limit):  $132 \text{ ug/l} / 0.978 = \mathbf{135 \text{ ug/l}}$

Zinc, acute (daily maximum limit):  $132 \text{ ug/l} / 0.986 = \mathbf{134 \text{ ug/l}}$

For lead, there is a different formula required to convert from the dissolved metal to the total metal as follows:

Lead - Chronic:  $2.75 \text{ ug/l} (1.46203 - [\ln(100)(0.145712)]) = 2.75/0.79 = \mathbf{3.5 \text{ ug/l}}$

Lead - Acute:  $71.5 \text{ ug/l} (1.46203 - [\ln(100)(0.145712)]) = 71.5/0.79 = \mathbf{90 \text{ ug/l}}$

After comparing the available metals data to the applicable instream metals criteria calculated above, EPA has established the following metals limits and monitoring requirements in this draft permit.

For aluminum, a monthly average limit of 96 ug/l has been established for outfall 003 and monitoring requirement for Outfall 001. For Outfall 003, this chronic value was exceeded 3 out of the 5 samples, but for Outfall 001, the applicable chronic value of 96 ug/l was exceeded only once and the average of the five samples was below 96 ug/l. The acute criterion was exceeded only once for Outfall 003 and this was not believed to be sufficient basis on which to establish a daily maximum limit at this time.

The site specific copper criteria applicable after dilution for Weasel Brook have been established as effluent limits for both outfalls since these criteria have been routinely exceeded in the WET data. These limits will be a monthly average of 20 ug/l and a daily maximum limit of 28 ug/l.

For zinc, these calculated values were only exceeded once in the 10 effluent samples, but all effluent samples registered detectable levels. Therefore, a quarterly zinc monitoring requirement has been established for both outfalls to better determine whether an effluent limit is required in the next permit.

For lead, only one of five of the sampling events for each parameter resulted in an amount exceeding the calculated chronic value of 3.5 ug/l. Therefore, a quarterly lead monitoring requirement with no limit has been established for both outfalls to better determine whether an effluent limit is required in the permit.

**Whole Effluent Toxicity Testing**

EPA's Technical Support Document for Water Quality-Based Toxics Control, March 1991, EPA/505/2-90-001, recommends using an "integrated strategy" containing both pollutant-specific (chemical) approaches and whole effluent (biological) toxicity

approaches to better detect toxics in effluent discharges. Pollutant-specific approaches, such as those in EPA's Gold Book (ambient water quality criteria) and state regulations, address individual chemicals, whereas whole effluent toxicity approaches evaluate interactions between pollutants, i.e., the "additivity", "antagonistic" and/or "synergistic" effects of pollutants. In addition, the presence of an unknown toxic pollutant can be discovered and addressed through this process.

Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts, as do the Massachusetts SWQS, which state, in part that "all surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife." The NPDES regulations at 40 CFR §122.44(d)(1)(v) require whole effluent toxicity (WET) limits in a permit when a discharge has a "reasonable potential" to cause or contribute to an instream excursion above the State's narrative criterion for toxicity. This WET test is a proactive method of protecting the environment so as to properly carry out EPA's Congressional mandate to prevent the discharge of toxic substances into the Nation's waterways.

Region I adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance. EPA Region I modified this strategy to protect aquatic life and human health in a manner that is cost-effective as well as environmentally protective.

The 2003 permit established a once per year WET testing requirement for Outfalls 001 and 003, with an LC<sub>50</sub> limit of 100% for both outfalls. The LC<sub>50</sub> is the concentration of effluent which causes mortality to 100% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent shall cause no more than a 50% mortality rate. The WET test results of the last 5 years show that the LC<sub>50</sub> limit was violated on three occasions for Outfall 001 and two occasions for Outfall 003. The analytical data that was conducted along with the WET tests indicated detectable levels of several metals, including aluminum, copper, zinc, and lead.

Since these discharges have been shown to exhibit toxic effects, the WET testing requirement has been maintained in this draft permit and the testing frequency has been increased from once per year to twice per year for both outfalls. The permittee shall test the freshwater specie Daphnid, Ceriodaphnia dubia and shall be limited to an LC<sub>50</sub> of equal to or greater than 100% for both outfalls. See **Attachment A** of the draft permit, Freshwater Acute Toxicity Test Procedure and Protocol, for the complete WET testing requirements. WET samples shall be taken during periods that include discharge from all of the contributing flows to each outfall, to the extent practicable and shall be conducted any time during the calendar quarters ending March 31 and September 30.

If these WET tests indicate persistent toxicity, the Regional Administrator and the Commissioner may decide to modify the permit. Such modifications may include additional toxicity limits and/or additional pollutant limits to adequately protect the receiving water quality during the remainder of the permit and a requirement to conduct a toxicity identification evaluation and/or a toxicity reduction evaluation.

### **Priority Pollutant Scan**

EPA has determined that a one time priority pollutant scan is necessary for Outfalls 001 and 003 in order to determine whether any pollutants are being discharged that have a reasonable potential to cause or contribute to violations of WQS and to also obtain more information regarding the cause of the WET limit violations of the last 5 years. If these scans show detectable levels of pollutants that may cause or contribute to violations of WQS, the permit may be reopened to require additional monitoring, specific permit limits and a requirement to conduct further investigation to determine the source of such pollutants and follow-up measures to remove such parameters from the discharges. Sampling for this scan shall be conducted during dry weather and during periods when all of the contributing flows to each outfall are occurring, to the extent practicable.

### **Outfall 003B**

As explained earlier, the permittee collects storm water from the “coal pocket” area and filters it prior to discharging it to Outfall 003. The 2003 permit established a total suspended solids (TSS) limit of 50 mg/l at the outlet of the filtering system, designated as Outfall 003B, an internal outfall. During the monitoring period, the TSS has ranged from 3 – 38 mg/l with no violations of the 50 mg/l limit. In order to assure that this water is adequately filtered prior to discharge to Outfall 003, this permit has retained this internal outfall limit for TSS.

It is not clear whether the flow through this filtering mechanism, estimated by the permittee at 5 gallons per minute, is sufficient to allow for all coal pocket water to be treated during larger frequency or intensity storm events. In such cases, this may result in some water spilling out of this containment area and into adjacent catch basins that would discharge to Weasel Brook, without treatment. As part of the storm water pollution prevention plan (SWPPP) requirement in the permit, the permittee shall assess the adequacy of the current filtering system. For guidance on this issue, EPA looked to the technology guidelines for steam electric power generating facilities at 40 CFR § 423. These regulations require that TSS from coal pile runoff be limited at 50 mg/l and that permittees capture and treat coal pile runoff that is generated by up to a 10 year, 24 hour rainfall event. A 10 year, 24 hour rainfall event is defined as a rainfall event with a probable recurrence interval of once in ten years as defined by the National Weather Service in Technical Paper No. 40. *Rainfall Frequency Atlas of the United States*, May 1961 or equivalent regional rainfall probability information developed therefrom. Therefore, EPA has made a BPJ determination that the permittee shall design its coal pile collection area and treatment to be able to adequately treat the storm water runoff from at least a 10 year, 24 four rainfall event.

### **Storm Water**

The 2003 permit required storm water sampling for outfall SW-1 for 2 of the 5 years of the permit term. The results from this sampling are as follows:

Total Copper: 32 to 98 ug/l	Total Aluminum: 53 to 2000 ug/l
Total Lead: 40 to 45 ug/l	Trivalent Chromium: 5 to 30 ug/l
Total Zinc: 65 to 163 ug/l	

To determine whether the levels of pollutants detected in this sampling are high enough to warrant further sampling, EPA's multi-sector general permit (MSGP) for storm water was reviewed for guidance. The MSGP was reissued in 2008 and established "benchmark values" for certain parameters in storm water discharges. These values were established based on a variety of factors, including water quality criteria, hardness values and historical storm water data. EPA determined that concentrations of pollutants in storm water above these "benchmark values" represented a level of concern. Therefore, these benchmark values were seen as levels above which impairments to water quality or human health from ingestion of water or fish could be occurring. Essentially, the benchmark values have been used as surrogates to determine whether a facility's storm water pollution prevention plan (SWPPP) measures are being adequately implemented. These values were not seen as limits but rather as levels above which further monitoring and an evaluation of the efficacy of storm water controls was required.

The benchmark values for several metals are hardness dependent. Results of the WET testing discussed above showed hardness levels in Weasel Brook ranging roughly between 100 and 300 mg/l (as CaCO<sub>3</sub>). For those metals listed above that whose benchmark values are hardness dependent, these are the benchmark values based on this hardness range:

**Copper:** 23 -53 ug/l ; **Lead:** 95 – 262 ug/l; **Zinc:** 130 – 260 ug/l

For those industrial sectors included in the MSGP from which aluminum is typically present in storm water runoff, the benchmark monitoring requirement sets a value of 750 ug/l for total aluminum, a value which is not hardness dependent.

Therefore, based on these minimal sampling results, it appears that the permittee is not adequately implementing its SWPPP to control the runoff of total copper, zinc, and aluminum since the sampling results have exceeded the applicable benchmark values.

The 2003 permit also included a storm water sampling requirement for eight (8) locations around the site, which included outfalls, catch basins, and manholes. The permittee was required to visually inspect and report for TSS and O&G only. During the monitoring period, the only results found were for one outfall and they included an O&G range of 1.8 – 15 mg/l and a TSS range of 34- 140 mg/l. In the MSGP, the benchmark value for TSS is 100 mg/l.

Therefore, since storm water sampling from the permittee's site has shown levels of metals and TSS above benchmark values and detectable levels of O&G, this draft permit has established twice per year storm water sampling. Sampling will be required for 6 of

the 8 locations listed in the 2003 permit (SW-1, SW-3, SW-4, SW-5, SW-6 and SW-7) as well as for Outfalls 001 and 003. The other two locations, designated as Outfalls SW-2 and 002, have been removed from the permit. Flow to Outfall 002 has been discontinued and Outfall SW-2, a catch basin from which storm water was sampled, is no longer on property owned by the permittee. Sampling will be required for a different pair of outfalls during each of the first four years of the permit term. The purpose of this monitoring is to assess the contribution of pollutants from storm water runoff to Weasel Brook and to gauge the effectiveness of the SWPPP in limiting the discharges of these parameters, consistent with the benchmark values established in the MSGP. Storm water outfalls designated as 001 and 003, from which the permitted dry weather flows also discharge, will remain the same. See Permit Attachment B for these storm water outfall locations.

### **Storm Water Pollution Prevention Plan (SWPPP)**

This facility engages in activities which have been shown to result in the discharge of pollutants to waters of the United States either directly or indirectly through storm water runoff. These operations include at least one of the following in an area potentially exposed to precipitation or storm water: material storage, in-facility transfer, material processing, material handling, or loading and unloading. To control the activities and operations which could contribute pollutants to waters of the United States, potentially violating the State's WQS, the Draft Permit requires the permittee to continue to implement and maintain a SWPPP containing best management practices (BMPs) appropriate for this facility (See Sections 304(e) and 402(a)(1) of the CWA and 40 CFR §125.103(b)). At this facility, storage areas for aluminum finished products and scrap components are examples of material storage operations that shall continue to be addressed in the SWPPP.

The goal of the SWPPP is to reduce, or prevent, the discharge of pollutants through the storm water drainage system. The SWPPP requirements in the Draft Permit are intended to provide a systematic approach by which the permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. The SWPPP shall be prepared in accordance with good engineering practices and identify potential sources of pollutants, which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity from the facility. The SWPPP, upon implementation, becomes a supporting element to any numerical effluent limitations in the Draft Permit. Consequently, the SWPPP is an enforceable element of this permit.

Implementation of the SWPPP involves the following four main steps:

- (1) Forming a team of qualified facility personnel who will be responsible for developing and updating the SWPPP and assisting the plant manager in its implementation;
- (2) Assessing the potential storm water pollution sources;
- (3) Selecting and implementing appropriate management practices and controls for these potential pollution sources; and

- (4) Periodically re-evaluating the effectiveness of the SWPPP in preventing storm water contamination and in complying with the various terms and conditions of the Draft Permit.

To minimize preparation time of the SWPPP, the permittee may, for example, reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans [under Section 311 of the CWA and 40 CFR Part 112], Corporate Management Practices, etc.; and may incorporate any part of such plans into the SWPPP by reference. Provided these references address specific pollution prevention requirements and the goals of the SWPPP, they can be attached to the SWPPP for review and inspection by EPA and MassDEP personnel. Although relevant portions of other environmental plans, as appropriate, can be built into the SWPPP, ultimately however, it is important to note that the SWPPP should be a comprehensive, stand-alone document.

Pursuant to Section 304(e) of the CWA and 40 CFR §125.103(b), best management practices (BMP) may be expressly incorporated into a permit on a case-by-case basis where necessary to carry out Section 402(a)(1) of the CWA.

To control these activities or operations, which could contribute pollutants to waters of the United States via storm water discharges at this facility, the 2003 permit required this facility to develop a Storm Water Pollution Prevention Plan (SWPPP) containing BMPs appropriate for this facility.

Generally, BMPs should include processes, procedures, schedules of activities, prohibitions on practices, and other management practices that prevent or reduce the discharge of pollutants in storm water runoff. A copy of the most recent SWPPP shall be kept at the facility and be available for inspection by EPA and MassDEP. The draft permit requires the permittee to continue to implement the current SWPPP and revise it as necessary no later than ninety (90) days after the permit's effective date. The SWPPP is a supporting element to any numerical effluent limitations which minimizes the discharge of pollutants through the proper operation of the facility. Consequently, the SWPPP is as equally enforceable as the numerical limits and other requirements of this permit. See **Part I.C.** of the permit for specific SWPPP requirements.

## **VII. Essential Fish Habitat Determination (EFH)**

“Pursuant to the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA’s actions or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat, such as: waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity (16 U.S.C. § 1802(10)). “Adversely impact” means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910(a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species’ fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.



Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. §1855(b)(1)(A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. Weasel Brook and Mill Brook in the vicinity of these discharges are not covered by the EFH designation for riverine systems and thus EPA has determined that EFH consultation with NMFS is not required.

### **VIII. Endangered Species Act (ESA)**

Section 7(a) of the Endangered Species Act (ESA) of 1973, as amended grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (“listed species”) and habitat of such species that has been designated as critical (a “critical habitat”). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) typically administer Section 7 consultations for bird, terrestrial, and freshwater aquatic species. The NMFS typically administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the listing of federal endangered or threatened species of fish, wildlife, and plants to see if any such listed species might potentially be impacted by the reissuance of this NPDES permit and has not found any such listed species. Therefore, EPA does not need to formally consult with NMFS or USFWS in regard to the provisions of the ESA. During the public comment period, EPA has provided a copy of the Draft Permit and Fact Sheet to both NMFS and USFWS.

### **Other Conditions**

The remaining conditions of the permit are based on the NPDES regulations, 40 CFR Parts 122 through 125, and consist primarily of management requirements common to all permits.

### **IX. State Certification Requirements**

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State WQS. The staff of MassDEP has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

## **X. Public Comment Period, Public Hearing, and Procedures for Final Decision**

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to George Papadopoulos, U.S. EPA, Office of Ecosystem Protection, Industrial Permits Branch, 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19.

## **XI. EPA and MassDEP Contacts**

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays, from the EPA and MassDEP contacts below:

George Papadopoulos, Industrial Permits Branch  
One Congress Street - Suite 1100 - Mailcode CIP  
Boston, MA 02114-2023  
Telephone: (617) 918-1579 FAX: (617) 918-1505

Paul Hogan, Massachusetts Department of Environmental Protection  
Division of Watershed Management, Surface Water Discharge Permit Program  
627 Main Street, 2nd Floor, Worcester, Massachusetts 01608  
Telephone: (508) 767-2796 FAX: (508) 791-4131

July 10, 2009  
Date

Ken Moraff, Acting Director  
Office of Ecosystem Protection  
U.S. Environmental Protection Agency

**Attachment A****Outfall 001 Discharge Monitoring Report Data Summary<sup>1</sup>**

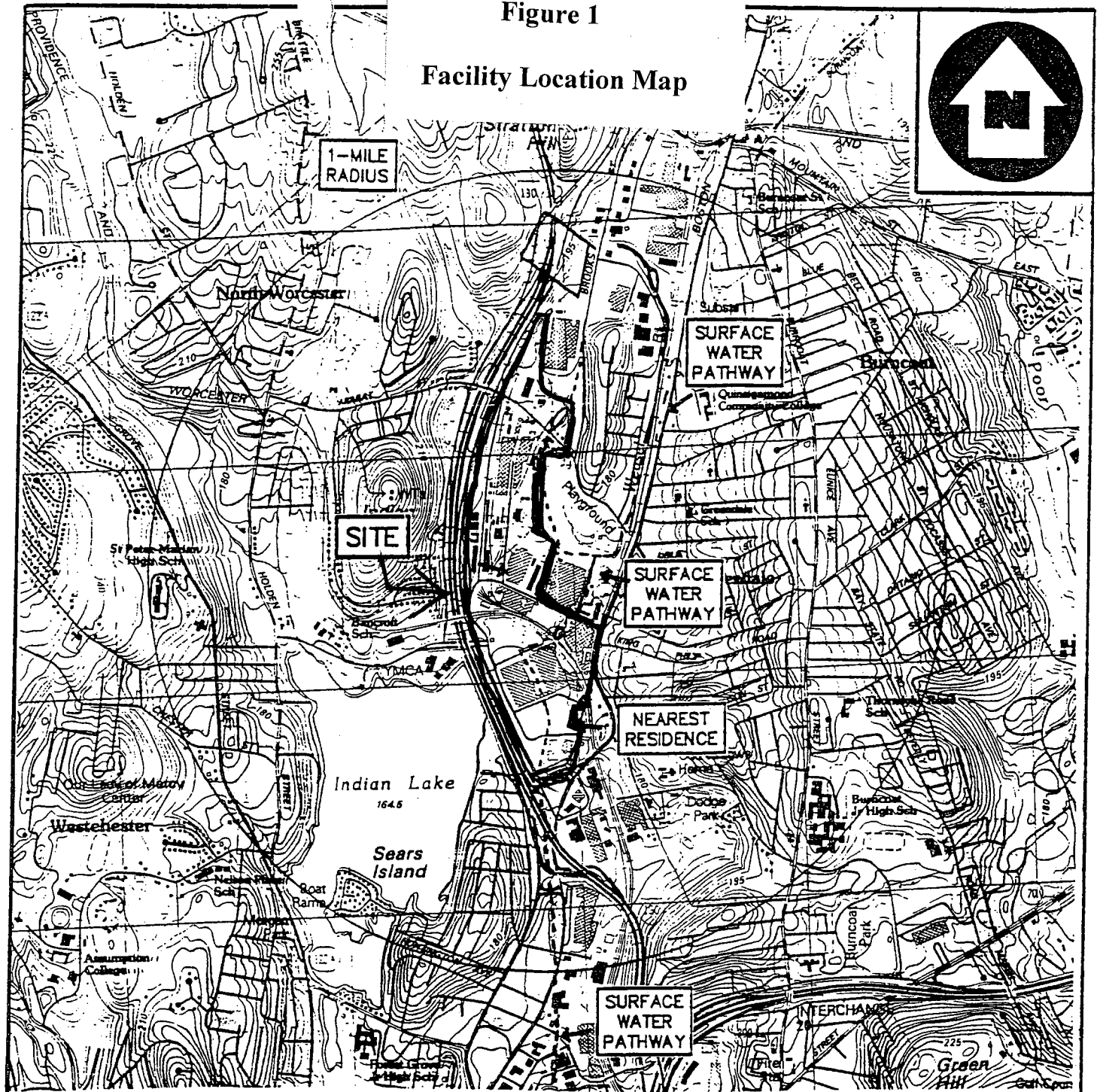
<b>Parameter</b>	<b>Range of Values</b>	<b>Permit Violations</b>
Flow, gallons per day	38,880 - 112,464	0
Oil & Grease, mg/l	0.5 – 2.3	0
pH, standard units	6.8 - 7.6	0
Temperature, °F	41 - 76	0
Dissolved Oxygen, mg/l	5.7 - 11.7	0
Whole Effluent Toxicity Testing LC50, %	66 – 93.3	2

**Outfall 003 Discharge Monitoring Report Data Summary<sup>1</sup>**

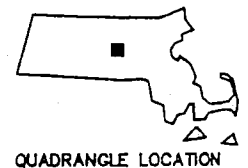
<b>Parameter</b>	<b>Range of Values</b>	<b>Permit Violations</b>
Flow, gallons per day	44,640 - 127,440	0
Oil & Grease, mg/l	0.5 - 6.3	0
pH, standard units	6.6 - 7.5	0
Temperature, °F	52 - 86	1
Dissolved Oxygen, mg/l	5.7 - 11.7	0
Whole Effluent Toxicity Testing LC50, %	35.4 - 100	1

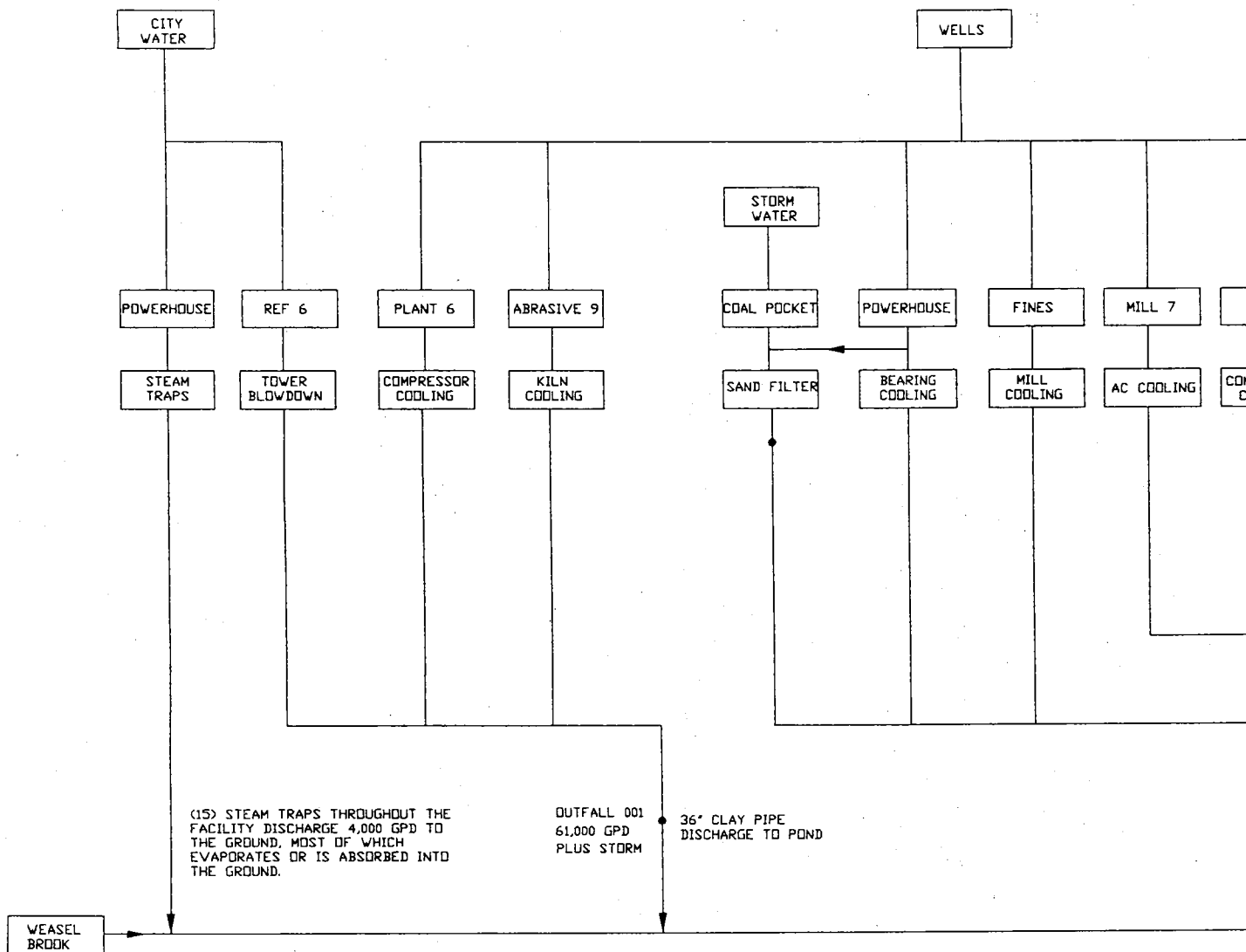
1. Discharge Monitoring Reports data for the period of January 2006 to May 2008.

## Facility Location Map



A scale bar for the map. The top part shows distances in miles: 0, 0.5, and 1 mile. The bottom part shows distances in feet: 1000, 0, 1000, 2000, 3000, 4000, 5000, 6000, and 7000 feet. The bar is divided into segments corresponding to these distances.





**NOTES:**

LISTED FLOW RATES REPRESENT MAXIMUM ESTIMATES BASED ON 2008 WELL WATER METER READINGS AND/OR ENGINEERING ESTIMATES OF MAXIMUM POTENTIAL FLOW FROM EQUIPMENT CURRENTLY CONNECTED

● = SAMPLE POINT

SAINT-GOBAIN  
WORCESTER, MASSACHUSETTS

**FIGURE 2**  
NPDES PERMIT  
SCHEMATIC OF WATER FLOW